Part 2
California Building Code

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ITEM 4
HCD 03/04 **STRUCTURAL DESIGN/LATERAL FORCES**
Part 2, Volume 2,
Sub-Items 4-1 through 4-15
Matrix Adoption Tables, Chapters 16, 19, 22, 22B and 23: Various sections

ITEM 4-1 AS SUBMITTED

MATRIX ADOPTION TABLES

Department of Housing and Community Development
Division of Codes and Standards
Amended 2001 California Building Code Matrix-Chapter 16– Structural Forces
Adopt entire Chapter as amended, amended sections listed below.

		2001 CBC Amendment Number	Amended 2001 CBC Amendment Number	HCD 1/AC Adoption	HCD 1 Adoption	HCD 2 Adoption	Comments
Chapter 16							
1612.3.2 CA			1612.3.2		X	X	
1612.3.2.1 UBC					+	+	
1612.3.2.2 CA			1612.3.2.2		X	X	
1629.4.2 CA			1629.4.2		X	X	
1629.4.2.1 UBC					+	+	
1629.4.2.2 CA			1629.4.2.2		X	X	
1630.2.3.4 CA			1630.2.3.4		X	X	
1630.4.2 CA			1630.4.2		X	X	
1630.4.2.1 UBC					+	+	
1630.4.2.2 CA			1630.4.2.2		X	X	
1630.8.2.1 CA			1630.8.2.1		X	X	

The **+** designation indicates that the section marked is not adopted by this agency for HCD 1 and/or HCD 2

1630.8.2.1.1 UBC					+	+	
1630.8.2.1.2 CA			1630.8.2.1.2		X	X	
1630.8.2.2 CA			1630.8.2.2		X	X	
1630.8.2.2.1 UBC					+	+	
1630.8.2.2.2 CA			1630.8.2.2.2		X	X	
Table 16 – N UBC					X	X	

Department of Housing and Community Development
Division of Codes and Standards
Amended 2001 California Building Code Matrix-Chapter 19– Concrete
Adopt entire Chapter as amended, amended sections listed below.

1997 UBC		1998 CBC Amendment Number	2001 CBC Amendment Number	HCD 1/AC Adoption	HCD 1 Adoption	HCD 2 Adoption	Comments
Chapter 19							
1915.2.2 CA			1915.2.2		X	X	
1915.2.2.1 UBC					+	+	
1915.2.2.2 CA			1915.2.2.2		X	X	
1928.1.2.3 CA			1928.1.2.3		X	X	
1928.1.2.3.1 UBC					+	+	

The **+** designation indicates that the section marked is not adopted by this agency for HCD 1 and/or HCD 2

Department of Housing and Community Development
Division of Codes and Standards
Amended 2001 California Building Code Matrix-Chapter 22– Steel
Adopt entire Chapter as amended, amended sections listed below.

1997 UBC		1998 CBC Amendment Number	2001 CBC Amendment Number	HCD 1/AC Adoption	HCD 1 Adoption	HCD 2 Adoption	Comments
Chapter 22							
2204.1 CA			2204.1		X	X	
2204.1.1 UBC					+	+	
2204.1.2 CA			2204.1.2		X	X	
2204.2 CA			2204.2		X	X	
2204.2.1 UBC					+	+	
2204.2.2 CA			2204.2.2		X	X	
Division IV UBC					+	+	
Division V UBC					+	+	

The **+** designation indicates that the section marked is not adopted by this agency for HCD 1 and/or HCD 2

Department of Housing and Community Development
Division of Codes and Standards
Amended 2001 California Building Code Matrix-Chapter 22B– Steel
Adopt entire California Chapter.

1997 UBC		1998 CBC Amendment Number	2001 CBC Amendment Number	HCD 1/AC Adoption	HCD 1 Adoption	HCD 2 Adoption	Comments
Chapter 22B					X	X	

Department of Housing and Community Development
Division of Codes and Standards
Amended 2001 California Building Code Matrix-Chapter 23 – Wood
Adopt entire Chapter as amended, amended sections listed below.

1997 UBC		1998 CBC Amendment Number	2001 CBC Amendment Number	HCD 1/AC Adoption	HCD 1 Adoption	HCD 2 Adoption	Comments
Chapter 23							
Part 1 CA			Part 1 CA		X	X	
2316 UBC			2316		X	X	
2316.1 UBC			2316.1		X	X	
2316.1.1 UBC					+	+	
2316.1.2 CA			2316.1.2 CA		X	X	
2316.2 UBC			2316.2		+	+	
2316.3 CA			2316.3 CA		X	X	

The **+** designation indicates that the section marked is not adopted by this agency for HCD 1 and/or HCD 2

ITEM 4-1 – Committee Recommendations

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APPROVED AS SUBMITTED

*** * ***

(END OF ITEM)

ITEM 4-2 AS SUBMITTED

~~**1612.3.2 Alternate basic load combinations.** In lieu of the basic load combinations specified in Section 1612.3.1, structures and portions thereof shall be permitted to be designed for the most critical effects resulting from the following load combinations. When using these alternate basic load combinations a one-third increase shall be permitted in allowable stresses for all combinations, including *W* or *E*.~~

~~D + L + (L_r or S) (12-12)~~
~~D + L + (W or E/1.4) (12-13)~~
~~D + L + W + S/2 (12-14)~~
~~D + L + S + W/2 (12-15)~~
~~D + L + S + E/1.4 (12-16)~~
~~0.9D ± E/1.4 (12-16-1)~~

~~**EXCEPTIONS:** 1. Crane hook loads need not be combined with roof live load or with more than three fourths of the snow load or one half of the wind load.~~

~~2. Design snow loads of 30 psf (1.44 kN/m2) or less need not be combined with seismic loads. Where design snow loads exceed 30 psf (1.44 kN/m2), the design snow load shall be included with seismic loads, but may be reduced up to 75 percent where consideration of siting, configuration and load duration warrant when approved by the building official.~~

1612.3.2 Alternate basic load combinations.

1612.3.2.1 In lieu of the basic load combinations specified in Section 1612.3.1, structures and portions thereof shall be permitted to be designed for the most critical effects resulting from the following load combinations. When using these alternate basic load combinations a one-third increase shall be permitted in allowable stresses for all combinations, including *W* or *E*.

D + L + (L_r or S) (12-12)
D + L + (W or E/1.4) (12-13)
D + L + W + S/2 (12-14)
D + L + S + W/2 (12-15)
D + L + S + E/1.4 (12-16)
0.9D ± E/1.4 (12-16-1)

EXCEPTIONS: 1. Crane hook loads need not be combined with roof live load or with more than three fourths of the snow load or one half of the wind load.

2. Design snow loads of 30 psf (1.44 kN/m2) or less need not be combined with seismic loads. Where design snow loads exceed 30 psf (1.44 kN/m2), the design snow load shall be included with seismic loads, but may be reduced up to 75 percent where consideration of siting, configuration and load duration warrant when approved by the building official.

1612.3.2.2 [For HCD 1 & HCD 2] In lieu of the basic load combinations specified in Section 1612.3.1, structures and portions thereof shall be permitted to be designed for the most critical effects resulting from the following load combinations. When using these alternate basic load combinations, a one-third increase shall be permitted in allowable stresses for all combinations including W or E *but not concurrent with the duration of load increase permitted in Division III of Chapter 23.*

D + L + (L_r or S)	(12-12)
D + L + (W or E/1.4)	(12-13)
D + L + W + S/2	(12-14)
D + L + S + W/2	(12-15)
D + L + S + E/1.4	(12-16)
0.9D ± E/1.4	(12-16-1)

EXCEPTIONS: 1. Crane hook loads need not be combined with roof live load or with more than three fourths of the snow load or one half of the wind load.

2. Design snow loads of 30 psf (1.44 kN/m^2) or less need not be combined with seismic loads. Where design snow loads exceed 30 psf (1.44 kN/m^2), the design snow load shall be included with seismic loads, but may be reduced up to 75 percent where consideration of siting, configuration and load duration warrant when approved by the building official.

Note:
Authority: Health and Safety Code Sections 17040, 17921, 17922, 18300, 18865, 18865.3, and 19990
Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990, 18000 – 18700, 18860 – 18874, and 19960 through 19997

ITEM 4-2 – Committee Recommendations

A AA D FS

APPROVED AS SUBMITTED

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(END OF ITEM)

ITEM 4-3 AS SUBMITTED

~~**1629.4.2 Seismic Zone 4 near-source factor.** In Seismic Zone 4, each site shall be assigned a near-source factor in accordance with Table 16-S and the Seismic Source Type set forth in Table 16-U. The value of *Na* used to determine *Ca* need not exceed 1.1 for structures complying with all the following conditions:~~

~~1. The soil profile type is *SA, SB, SC* or *SD.*~~

~~2. ρ = 1.0.~~

~~3. Except in single-story structures, Group R, Division 3 and Group U, Division 1 Occupancies, moment frame systems designated as part of the lateral-force-resisting system shall be special moment-resisting frames.~~

~~4. The exceptions to Section 2213.7.5 shall not apply, except for columns in one-story buildings or columns at the top story of multistory buildings.~~

~~5. None of the following structural irregularities is present:~~
~~Type 1, 4 or 5 of Table 16-L, and Type 1 or 4 of Table 16-M.~~

1629.4.2 Seismic Zone 4 near-source factor.

1629.4.2.1 In Seismic Zone 4, each site shall be assigned a near-source factor in accordance with Table 16-S and the Seismic Source Type set forth in Table 16-U. The value of *Na* used to determine *Ca* need not exceed 1.1 for structures complying with all the following conditions:

1. The soil profile type is *SA, SB, SC* or *SD.*

2. ρ = 1.0.

3. Except in single-story structures, Group R, Division 3 and Group U, Division 1 Occupancies, moment frame systems designated as part of the lateral-force-resisting system shall be special moment-resisting frames.

4. The exceptions to Section 2213.7.5 shall not apply, except for columns in one-story buildings or columns at the top story of multistory buildings.

5. None of the following structural irregularities is present:
Type 1, 4 or 5 of Table 16-L, and Type 1 or 4 of Table 16-M.

1629.4.2.2 [For HCD 1 & HCD 2] In Seismic Zone 4, each site shall be assigned a near-source factor in accordance with Table 16-S and the Seismic Source Type set forth in Table 16-U. The value of N_a used in determining C_a need not exceed 1.1 for structures complying with all the following conditions:

1. The soil profile type is S_A, S_B, S_C or S_D.

2. $\rho = 1.0$.

3. Except in single-story structures, Group R, Division 3 and Group U, Division 1 Occupancies, moment frame systems designated as part of the lateral-force-resisting system shall be special moment-resisting frames.

*4. * * * The provisions in Sections 9.6a and 9.6b of AISC - Seismic Part 1 shall not apply, except for columns in one-story buildings or columns at the top story of multistory buildings.*

5. None of the following structural irregularities is present: Type 1, 4 or 5 of Table 16-L, and Type 1 or 4 of Table 16-M.

Note:
Authority: Health and Safety Code Sections 17040, 17921, 17922, 18300, 18865, 18865.3, and 19990
Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990, 18000 – 18700, 18860 – 18874, and 19960 through 19997

ITEM 4-3 – Committee Recommendations

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(END OF ITEM)

ITEM 4-4 AS SUBMITTED

1630.2.3.3 *Distribution*

~~**1630.2.3.3**~~ ***1630.2.3.3.1*** **Vertical Distribution.** The forces at each level shall be calculated using the following formula:

$$F_x = \frac{3.0\ C_a}{R} W_i \qquad \text{(30-12)}$$

where the value of C_a shall be determined in Section 1630.2.3.2.

1630.2.3.3.2 [For HCD 1 & HCD 2] Horizontal Distribution. *Diaphragms constructed of untopped steel decking or wood structural panels or similar light-frame construction are permitted to be considered as flexible.*

Note:
Authority: Health and Safety Code Sections 17040, 17921, 17922, 18300, 18865, 18865.3, and 19990
Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990, 18000 – 18700, 18860 – 18874, and 19960 through 19997

ITEM 4-4 – Committee Recommendations

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APPROVED AS SUBMITTED

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(END OF ITEM)

ITEM 4-5 AS SUBMITTED

~~**1630.4.2 Vertical combinations.** The value of *R* used in the design of any story shall be less than or equal to the value of *R* used in the given direction for the story above.~~

~~**EXCEPTION:** This requirement need not be applied to a story where the dead weight above that story is less than 10 percent of the total dead weight of the structure.~~

~~Structures may be designed using the procedures of this section under the following conditions:~~

~~1. The entire structure is designed using the lowest *R* of the lateral force-resisting systems used, or~~

~~2. The following two-stage static analysis procedures may be used for structures conforming to Section 1629.8.3, Item 4.~~

~~2.1 The flexible upper portion shall be designed as a separate structure, supported laterally by the rigid lower portion, using the appropriate values of *R* and ρ.~~

~~2.2 The rigid lower portion shall be designed as a separate structure using the appropriate values of *R* and ρ. The reactions from the upper portion shall be those determined from the analysis of the upper portion amplified by the ratio of the *(R/*ρ) of the upper portion over *(R/*ρ) of the lower portion.~~

1630.4.2 Vertical combinations.

1630.4.2.1 The value of *R* used in the design of any story shall be less than or equal to the value of *R* used in the given direction for the story above.

EXCEPTION: This requirement need not be applied to a story where the dead weight above that story is less than 10 percent of the total dead weight of the structure.

Structures may be designed using the procedures of this section under the following conditions:

1. The entire structure is designed using the lowest *R* of the lateral-force-resisting systems used, or

2. The following two-stage static analysis procedures may be used for structures conforming to Section 1629.8.3, Item 4.

2.1 The flexible upper portion shall be designed as a separate structure, supported laterally by the rigid lower portion, using the appropriate values of *R* and ρ.

2.2 The rigid lower portion shall be designed as a separate structure using the appropriate values of *R* and ρ. The reactions from the upper portion shall be those determined from the analysis of the upper portion amplified by the ratio of the *(R/*ρ) of the upper portion over *(R/*ρ) of the lower portion.

~~*1630.4.2.1*~~ ***1630.4.2.2 [For HCD 1 & HCD 2]*** The value of R used in the design of any story shall be less than or equal to the value of R used in the given direction for the story above.

EXCEPTION: This requirement need not be applied to a story where the dead weight above that story is less than 10 percent of the total dead weight of the structure.

Structures may be designed using the procedures of this section under the following conditions:
1. The entire structure is designed using the lowest R of the lateral-force-resisting systems used, or

2. The following two-stage static analysis procedures may be used for structures conforming to Section 1629.8.3, Item 4.

2.1 The flexible upper portion shall be designed as a separate structure, supported laterally by the rigid lower portion, using the appropriate values of R and ρ.

2.2 The rigid lower portion shall be designed as a separate structure using the appropriate values of R and ρ. The reactions from the upper portion shall be those determined from the analysis of the upper portion

multiplied by the ratio of the (R/ρ) of the upper portion over (R/ρ) of the lower portion. *This ratio shall not be taken less than 1.0.*

Note:
Authority: Health and Safety Code Sections 17040, 17921, 17922, 18300, 18865, 18865.3, and 19990
Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990, 18000 – 18700, 18860 – 18874, and 19960 through 19997

ITEM 4-5 – Committee Recommendations

A AA D FS

APPROVED AS SUBMITTED

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(END OF ITEM)

ITEM 4-6 AS SUBMITTED

~~**1630.8.2.1 General.** Where any portion of the lateral load-resisting system is discontinuous, such as for vertical irregularity Type 4 in Table 16-L or plan irregularity Type 4 in Table 16-M, concrete, masonry, steel and wood elements supporting such discontinuous systems shall have the design strength to resist the combination loads resulting from the special seismic load combinations of Section 1612.4.~~

~~**EXCEPTIONS:** 1. The quantity E_m in Section 1612.4 need not exceed the maximum force that can be transferred to the element by the lateral-force-resisting system.~~

~~2. Concrete slabs supporting light-frame wood shear wall systems or light-frame steel and wood structural panel shear wall systems.~~

~~For Allowable Stress Design, the design strength may be determined using an allowable stress increase of 1.7 and a resistance factor, Φ, of 1.0. This increase shall not be combined with the one third stress increase permitted by Section 1612.3, but may be combined with the duration of load increase permitted in Chapter 23, Division III.~~

1630.8.2.1 General.

1630.8.2.1.1 Where any portion of the lateral-load-resisting system is discontinuous, such as for vertical irregularity Type 4 in Table 16-L or plan irregularity Type 4 in Table 16-M, concrete, masonry, steel and wood elements supporting such discontinuous systems shall have the design strength to resist the combination loads resulting from the special seismic load combinations of Section 1612.4.

EXCEPTIONS: 1. The quantity E_m in Section 1612.4 need not exceed the maximum force that can be transferred to the element by the lateral-force-resisting system.

2. Concrete slabs supporting light-frame wood shear wall systems or light-frame steel and wood structural panel shear wall systems.

For Allowable Stress Design, the design strength may be determined using an allowable stress increase of 1.7 and a resistance factor, Φ, of 1.0. This increase shall not be combined with the one-third stress increase permitted by Section 1612.3, but may be combined with the duration of load increase permitted in Chapter 23, Division III.

~~***1630.8.2.1.1***~~ ***1630.8.2.1.2*** **[For HCD 1 & HCD 2]** Where any portion of the lateral-load-resisting system is discontinuous, such as for vertical irregularity Type 4 in Table 16-L or plan irregularity Type 4 in Table 16-M, concrete, masonry, steel and wood elements *(i.e. columns, beams, trusses or slabs)* supporting such discontinuous systems shall have the design strength to resist the combination loads resulting from the special seismic load combinations of Section 1612.4. *The Connections of such discontinued elements to the supporting members shall be adequate to transmit the forces for which the discontinuous elements were required to be designed.*

EXCEPTIONS: 1. The quantity E_m in Section 1612.4 need not exceed the maximum force that can be transferred to the element by the lateral-force-resisting system.

2. Concrete slabs supporting light-frame wood shear wall systems or light-frame steel and wood structural panel shear wall systems.

For Allowable Stress Design, the design strength may be determined using an allowable stress increase of 1.7 and a resistance factor, Φ, of 1.0. This increase shall not be combined with the one-third stress increase permitted by Section 1612.3, but may be combined with the duration of load increase permitted in Chapter 23, Division III.

Note:
Authority: Health and Safety Code Sections 17040, 17921, 17922, 18300, 18865, 18865.3, and 19990
Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990, 18000 – 18700, 18860 – 18874, and 19960 through 19997

ITEM 4-6 – Committee Recommendations

A AA D FS

APPROVED AS SUBMITTED

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(END OF ITEM)

ITEM 4-7 AS SUBMITTED

~~**1630.8.2.2 Detailing requirements in Seismic Zones 3 and 4.** In Seismic Zones 3 and 4, elements supporting discontinuous systems shall meet the following detailing or member limitations:~~

~~1. Reinforced concrete elements designed primarily as axial load members shall comply with Section 1921.4.4.5.~~

~~2. Reinforced concrete elements designed primarily as flexural members and supporting other than light-frame wood shear wall systems or light-frame steel and wood structural panel shear wall systems shall comply with Sections 1921.3.2 and 1921.3.3. Strength computations for portions of slabs designed as supporting elements shall include only those portions of the slab that comply with the requirements of these sections.~~

~~3. Masonry elements designed primarily as axial load carrying members shall comply with Sections 2106.1.12.4, Item 1, and 2108.2.6.2.6.~~

~~4. Masonry elements designed primarily as flexural members shall comply with Section 2108.2.6.2.5.~~

~~5. Steel elements designed primarily as axial load members shall comply with Sections 2213.5.2 and 2213.5.3.~~

~~6. Steel elements designed primarily as flexural members or trusses shall have bracing for both top and bottom beam flanges or chords at the location of the support of the discontinuous system and shall comply with the requirements of Section 2213.7.1.3.~~

~~7. Wood elements designed primarily as flexural members shall be provided with lateral bracing or solid blocking at each end of the element and at the connection location(s) of the discontinuous system.~~

1630.8.2.2 Detailing requirements in Seismic Zones 3 and 4.

1630.8.2.2.1 In Seismic Zones 3 and 4, elements supporting discontinuous systems shall meet the following detailing or member limitations:

1. Reinforced concrete elements designed primarily as axial-load members shall comply with Section 1921.4.4.5.

2. Reinforced concrete elements designed primarily as flexural members and supporting other than light-frame wood shear wall systems or light-frame steel and wood structural panel shear wall systems shall comply with Sections 1921.3.2 and 1921.3.3. Strength computations for portions of slabs designed as supporting elements shall include only those portions of the slab that comply with the requirements of these sections.

3. Masonry elements designed primarily as axial-load carrying members shall comply with Sections 2106.1.12.4, Item 1, and 2108.2.6.2.6.

4. Masonry elements designed primarily as flexural members shall comply with Section 2108.2.6.2.5.

5. Steel elements designed primarily as axial-load members shall comply with Sections 2213.5.2 and 2213.5.3.

6. Steel elements designed primarily as flexural members or trusses shall have bracing for both top and bottom beam flanges or chords at the location of the support of the discontinuous system and shall comply with the requirements of Section 2213.7.1.3.

7. Wood elements designed primarily as flexural members shall be provided with lateral bracing or solid blocking at each end of the element and at the connection location(s) of the discontinuous system.

~~***1630.2.2.1***~~ ***1630.8.2.2.2 [For HCD 1 & HCD 2]*** In Seismic Zones 3 and 4, elements supporting discontinuous systems shall meet the following detailing or member limitations:

1. Reinforced concrete or reinforced masonry elements designed primarily as axial-load members shall comply with Section 1921.4.4.5.

2. Reinforced concrete elements designed primarily as flexural members and supporting other than light-frame wood shear wall systems or light-frame steel and wood structural panel shear wall systems shall comply with Sections 1921.3.2 and 1921.3.3. Strength computations for portions of slabs designed as supporting elements shall include only those portions of the slab that comply with the requirements of these Sections.

3. Masonry elements designed primarily as axial-load carrying members shall comply with Sections 2106.1.12.4, Item 1, and 2108.2.6.2.6.

4. Masonry elements designed primarily as flexural members shall comply with Section 2108.2.6.2.5.

5. * * *

~~5~~ 6. Steel elements designed primarily as flexural members or trusses shall have bracing for both top and bottom beam flanges or chords at the location of the support of the discontinuous system and shall comply with the requirements of * * * *AISC-Seismic Part I, Section 9.4b.*

~~6~~ 7. Wood elements designed primarily as flexural members shall be provided with lateral bracing or solid blocking at each end of the element and at the connection location(s) of the discontinuous systems.

Note:
Authority: Health and Safety Code Sections 17040, 17921, 17922, 18300, 18865, 18865.3, and 19990
Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990, 18000 – 18700, 18860 – 18874, and 19960 through 19997

ITEM 4-7 – Committee Recommendations

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(END OF ITEM)

ITEM 4-8 AS SUBMITTED

Section 1628 – Symbols and Notations

R = numerical coefficient representative of the inherent overstrength and global ductility capacity of lateral-force-resisting systems, as set forth in Table 16-N *[For HCD 1 & HCD 2] Table 16-N.1* or 16-P.

Ω = Seismic Force Amplification Factor, which is required to account for structural overstrength and set forth in Table 16-N *[For HCD 1 & HCD 2] Table 16-N.1*.

1629.6.1 General. Structural systems shall be classified as one of the types listed in Table 16-N *[For HCD 1 & HCD 2] Table 16-N.1* and defined in this section.

1629.6.7 Undefined structural system. A structural system not listed in Table 16-N *[For HCD 1 & HCD 2] Table 16-N.1*

1629.7 Height Limits. Height limits for the various structural systems in Seismic Zones 3 and 4 are given in Table 16-N *[For HCD 1 & HCD 2] Table 16-N.1*.

EXCEPTION: Regular structures may exceed these limits by not more than 50 percent for unoccupied structures, which are not accessible to the general public.

1629.8.3 Static. The static lateral force procedure of Section 1630 may be used for the following structures:

1. All structures, regular or irregular, in Seismic Zone 1 and in Occupancy Categories 4 and 5 in Seismic Zone 2.

2. Regular structures under 240 feet (73 152 mm) in height with lateral force resistance provided by systems listed in Table 16-N *[For HCD 1 & HCD 2] Table 16-N.1*, except where Section 1629.8.4, Item 4, applies.

3. Irregular structures not more than five stories or 65 feet (19 812 mm) in height.

4. Structures having a flexible upper portion supported on a rigid lower portion where both portions of the structure considered separately can be classified as being regular, the average story stiffness of the lower portion is at least 10 times the average story stiffness of the upper portion and the period of the entire structure is not greater than 1.1 times the period of the upper portion considered as a separate structure fixed at the base.

1629.9.2 Undefined structural systems. For undefined structural systems not listed in Table 16-N *[For HCD 1 & HCD 2] Table 16-N.1*, the coefficient R shall be substantiated by approve cyclic test data and analysis. ….

~~*1630.2.3.5*~~ **1630.2.3.4 Applicability.** Sections 1630.1.2, 1630.1.3, 1630.2.1, 1630.2.2, 1630.5, 1630.9, 1630.10 and 1631 shall not apply when using the simplified procedure.

EXCEPTION: For buildings with relatively flexible structural systems, the building official may require consideration of $P\Delta$ effects and drift in accordance with Sections 1630.1.3, 1630.9 and 1630.10.Δs shall be prepared using design seismic forces from Section 1630.2.3.2.

Where used, ΔM shall be taken equal to 0.01 times the story height of all stories. In Section 1633.2.9, Formula (33-1) shall read $Fpx = 3.0\ Ca\ R\ wpx$ and need not exceed $1.0\ Ca\ wpx$, but shall not be less than $0.5\ Ca\ wpx$. R and Ωo shall be taken from Table 16-N *[For HCD 1 & HCD 2] Table 16-N.1*.

1630.3.1 Determination of Ωo. For specific elements of the structure, as specifically identified in this code, the minimum design strength shall be the product of the seismic force overstrength factor Ωo and the design seismic forces set forth in Section 1630. For both Allowable Stress Design and StrengthDesign, the Seismic Force Overstrength Factor, Ωo, shall be taken from Table 16-N *[For HCD 1 & HCD 2] Table 16-N.1*.

1630.3.2 Determination of *R*. The notation *R* shall be taken from Table 16-N *[For HCD 1 & HCD 2] Table 16-N.1*.

1633.2.1 General. Four types of general building framing systems defined in Section 1629.6 are recognized in these provisions and shown in Table 16-N *[For HCD 1 & HCD 2] Table 16-N.1*. Each type is subdivided by the types of vertical elements used to resist lateral seismic forces. Special framing requirements are given in this section and in Chapters 19 through 23.

1634.2 Lateral Force. Lateral-force procedures for nonbuilding structures with structural systems similar to buildings (those with structural systems which are listed in Table 16-N *[For HCD 1 & HCD 2] Table 16-N.1*) shall be selected in accordance with the provisions of Section 1629.

EXCEPTION: Intermediate moment-resisting frames (IMRF) may be used in Seismic Zones 3 and 4 for nonbuilding structures in Occupancy Categories 3 and 4 if (1) the structure is less than 50 feet (15 240 mm) in height and (2) the value *R* used in reducing calculated member forces and moments does not exceed 2.8.

TABLE 16-N — STRUCTURAL SYSTEMS

Repeal adoption of Chapter 16, Table 16-N in its entirety and adopt the proposed Chapter 16, Table 16-N.1.

TABLE 16-N.1 — [For HCD 1 & HCD 2] STRUCTURAL SYSTEMS [1]

BASIC STRUCTURAL SYSTEM[2]	LATERAL-FORCE-RESISTING SYSTEM DESCRIPTION	*R*	Ωo	HEIGHT LIMIT FOR SEISMIC ZONES 3 AND 4 (feet) x 304.8 for mm
1. Bearing wall system	1. Light-framed walls with shear panels			
	a. Wood structural panel walls for structures three stories or less	5.5	2.8	65
	b. All other light-framed walls	4.5	2.8	65
	2. Shear walls			
	a. Concrete	4.5	2.8	160
	b. Masonry	4.5	2.8	160
	3. Light steel-framed bearing walls with tension-only bracing	2.8	2.2	65
	4. Braced frames where bracing carries gravity load			
	a. Steel	4.4	2.2	160
	b. Concrete[3]	2.8	2.2	=
	c. Heavy timber	2.8	2.2	65
2. Building frame system	1. Steel eccentrically braced frame (EBF)	7.0	2.8	240
	2. Light-framed walls with shear panels.			
	a. Wood structural panel walls for structures three stories or less	6.5	2.8	65
	b. All other light-framed walls	5.0	2.8	65
	3. Shear walls			
	a. Concrete	5.5	2.8	240
	b. Masonry	5.5	2.8	160
	4. Ordinary braced frames			
	a. Steel[6]	****5*	****2*	*35*[6]
	b. Concrete[3]	5.6	2.2	=
	c. Heavy timber	5.6	2.2	65
	5. Special concentrically braced frames			
	a. Steel	6.4	2.2	240

3. Moment-resisting frame system	1. Special moment-resisting frame (SMRF)			
	a. Steel	8.5	2.8	N.L.
	b. Concrete[4]	8.5	2.8	N.L.
	2. Masonry moment-resisting wall frame (MMRWF)	6.5	2.8	160
	3. Intermediate moment-resisting frame (IMRF)			
	a. Steel [6]	****4.5*	****2.8*	*35*[6]
	b. Concrete[5]	****5.5*	****2.8*	=
	4. Ordinary moment-resisting frame (OMRF)			
	a. Steel[6]	****3.5*	****2.8*	-
	b. Concrete[7]	3.5	2.8	=
	5. Special truss moment frames of steel (STMF)	6.5	2.8	240
4. Dual systems	1. Shear walls			
	a. Concrete with SMRF	8.5	2.8	N.L.
	b. Concrete with steel OMRF *(Not Permitted)*	=	=	=
	c. Concrete with concrete IMRF [5]	6.5	2.8	160
	d. Masonry with SMRF	5.5	2.8	160
	e. Masonry with steel OMRF *(Not Permitted)*	=	=	=
	f. Masonry with concrete IMRF [3]	4.2	2.8	=
	g. Masonry with masonry MMRWF	6.0	2.8	160
	2. Steel EBF			
	a. With steel SMRF	8.5	2.8	N.L.
	b. With steel OMRF *(Not Permitted)*	=	=	=
	3. Ordinary braced frames *(Not Permitted)*			
	a. Steel with steel SMRF	=	=	=
	b. Steel with steel OMRF	=	=	=
	c. Concrete with concrete SMRF[3]	=	=	=
	d. Concrete with concrete IMRF[3]	=	=	=
	4. Special concentrically braced frames			
	a. Steel with steel SMRF	7.5	2.8	N.L.
	b. Steel with steel OMRF *(Not Permitted)*	=	=	=
	5. Steel IMRF (Not permitted)	=	=	=
5. Cantilevered column building systems	1. Cantilevered column elements	2.2	2.0	35[7]
6. Shear wall-frame interaction systems	1. Concrete[8]	5.5	2.8	160
7. Undefined systems	See Section 1629.6.7 and 1629.9.2	=	=	=

N.L.– no limit

[1] See Section 1630.4 for combination of structural systems.

[2] Basic structural systems are defined in Section 1629.6.

[3] Prohibited in Seismic Zones 3 and 4.
[4] Includes precast concrete conforming to Section 1921.2.7.
[5] Prohibited in Seismic Zones 3 and 4, except as permitted in Section 1634.2.
[6] * * * *Unless otherwise approved by the enforcement agency, in Seismic Zone 4 :*
[6.1] *Steel IMRF are permitted for buildings 35 ft. or less in height and the dead load of the roof, walls or floors not exceeding 35 psf each; or for single-story buildings 60 ft. or less in height with dead load of the roof or walls not exceeding 15 psf each where the moment joints of field connections are constructed of bolted end plates; or single-family dwellings using light frame construction with R = 3.0 and Ω_o = 2.2.*
[6.2] *Steel OMRF are permitted for buildings 35 ft or less in height with the dead load of the roof, walls or floors not exceeding 15 psf each; or single-story buildings 60 ft or less in height with the dead load of the roof or walls not exceeding 15 psf each and where the moment joints of field connections are constructed of bolted end plates.*
[6.3] *Steel Ordinary Braced Frames are permitted for buildings 35 ft or less in height; or penthouse structures; or single-story buildings 60 ft or less in height with the dead load of the roof or walls not exceeding 15 psf. each.*
[7] Total height of the building including cantilevered columns.
[8] Prohibited in Seismic Zones 2A, 2B, 3 and 4. See Section 1633.2.7.

Note:
Authority: Health and Safety Code Sections 17040, 17921, 17922, 18300, 18865, 18865.3, and 19990
Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990, 18000 – 18700, 18860 – 18874, and 19960 through 19997

ITEM 4-8 – Committee Recommendations

A AA D FS

APPROVED AS SUBMITTED

*** * ***

(END OF ITEM)

ITEM 4-9 AS SUBMITTED

CHAPTER 19 – CONCRETE

~~**1915.2.2 Base area of footing or number and arrangement of piles.** Base area of footing or number and arrangement of piles shall be determined from the external forces and moments (transmitted by footing to soil or piles) and permissible soil pressure or permissible pile capacity selected through principles of soil mechanics. *External forces and moments are those resulting from un-factored loads (D, L, W and E) specified in Chapter 16.*~~

1915.2.2 Base area of footing or number and arrangement of piles.

1915.2.2.1 Base area of footing or number and arrangement of piles shall be determined from the external forces and moments (transmitted by footing to soil or piles) and permissible soil pressure or permissible pile capacity selected through principles of soil mechanics. *External forces and moments are those resulting from un-factored loads (D, L, W and E) specified in Chapter 16.*

~~***1915.2.2.1***~~ ***1915.2.2.2 [For HCD 1 & HCD 2]*** Base area of footing or number and arrangement of piles shall be determined from the external forces and moments (transmitted by footing to soil or piles) and permissible soil pressure or permissible pile capacity selected through principles of soil mechanics. External forces and moments are those resulting from * * * *the load combinations of Section 1612.3.*

1921.2.1.7 *In structures having precast gravity systems, the lateral-force-resisting system shall be one of the systems listed in Table 16-N [For HCD 1 & HCD 2] Table 16-N.1 and shall be well distributed using one of the following methods:*

1. The lateral-force-resisting systems shall be spaced such that the span of the diaphragm or diaphragm segment between lateral-force-resisting systems shall be no more than three times the width of the diaphragm or diaphragm segment.

Where the lateral-force-resisting system consists of moment-resisting frames, at least [(Nb/4) + 1] of the bays (rounded up to the nearest integer) along any frame line at any story shall be part of the lateral-force-resisting system,

where Nb is the total number of bays along that line at that story. This requirement applies to only the lower two thirds of the stories of buildings three stories or taller.

2. All beam-to-column connections that are not part of the lateral-force-resisting system shall be designed in accordance with the following:

Connection design force. *The connection shall be designed to develop strength M. M is the moment developed at the connection when the frame is displaced by ∆s assuming fixity at the connection and a beam flexural stiffness of no less than one-half of the gross section stiffness. M shall be sustained through a deformation of ∆m [for OSHPD 2] ∆M.*

Connection characteristics. *The connection shall be permitted to resist moment in one direction only, positive or negative. The connection at the opposite end of the member shall resist moment with same positive or negative sign. The connection shall be permitted to have zero flexural stiffness up to a frame displacement of ∆s.*

In addition, complete calculations for the deformation compatibility of the gravity load carrying system shall be made in accordance with Section 1633.2.4 using cracked section stiffnesses in the lateral-force-resisting system and the diaphragm.

Where gravity columns are not provided with lateral support on all sides, a positive connection shall be provided along each unsupported direction parallel to a principal plan axis of the structure. The connection shall be designed for a horizontal force equal to 4 percent of the axial load strength (P0) of the column. The bearing length shall be 2 inches (51 mm) more than that required for bearing strength.

Note:
Authority: Health and Safety Code Sections 17040, 17921, 17922, 18300, 18865, 18865.3, and 19990
Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990, 18000 – 18700, 18860 – 18874, and 19960 through 19997

ITEM 4-9 – Committee Recommendations

A AA D FS

APPROVED AS SUBMITTED

*** * ***

(END OF ITEM)

ITEM 4-10 AS SUBMITTED

1928.1.2.3 Basic Combinations.

~~***1928.1.2.3 Basic Combinations.*** When permitted by Section 1928.1, structures, components and foundations shall be designed so that their design strength exceeds the effects of the factored loads in the following combinations:~~

~~1. 1.4D~~
~~2. 1.2D + 1.6L + 0.5(L, or S or R)~~
~~3. 1.2D + 1.6(L, or S or R) + (0.5L or 0.8W)~~
~~4. 1.2D + 1.3W + 0.5L + 0.5(L, or S or R)~~
~~5. 1.2D ± 1.5E + (0.5L or 0.2S)~~
~~6. 0.9D ± (1.3W or 1.5E)~~

~~**EXCEPTIONS:** 1. The load factor on L in combinations 3, 4 and 5 shall equal 1.0 for garages, areas occupied and places of public assembly, and all areas where the live load is greater than 100 lb./ft.^{2} (pounds-force per square foot) (4.79 kPa).~~

~~2. Each relevant strength limit state shall be considered. The most unfavorable effect may occur when one or more of the contributing loads are not acting.~~

1928.1.2.3.1 When permitted by Section 1928.1, structures, components and foundations shall be designed so that their design strength exceeds the effects of the factored loads in the following combinations:

1. 1.4D
2. 1.2D + 1.6L + 0.5(L_r or S or R)
3. 1.2D + 1.6(L_r or S or R) + (0.5L or 0.8W)
4. 1.2D + 1.3W + 0.5L + 0.5(L_r or S or R)
5. 1.2D ± 1.5E + (0.5L or 0.2S)
6. 0.9D ± (1.3W or 1.5E)

EXCEPTIONS: 1. The load factor on L in combinations 3, 4 and 5 shall equal 1.0 for garages, areas occupied and places of public assembly, and all areas where the live load is greater than 100 lb./ft.^{2} (pounds-force per square foot) (4.79 kPa).

2. Each relevant strength limit state shall be considered. The most unfavorable effect may occur when one or more of the contributing loads are not acting.

~~***1928.1.2.3.1***~~ ***1928.1.2.3.2 [For HCD 1 & HCD 2]*** When permitted by Section 1928.1, structures, components and foundations shall be designed so that their design strength exceeds the effects of the factored loads in the following combinations:

1. 1.4D
2. 1.2D + 1.6L + 0.5(L_r or S or R)
3. 1.2D + 1.6(L_r or S or R) + (0.5L or 0.8W)
4. 1.2D + 1.3W + 0.5L + 0.5(L_r or S or R)
5. 1.2D ± * * * 1.0E + (0.5L or 0.2S)
6. 0.9D ± (1.3W or * * * *1.0E)*

EXCEPTIONS: 1. The load factor on L in combinations 3, 4 and 5 shall equal 1.0 for garages, areas occupied and places of public assembly, and all areas where the live load is greater than 100 lb./ft.^{2} (pounds-force per square foot) (4.79 kPa).

2. Each relevant strength limit state shall be considered. The most unfavorable effect may occur when one or more of the contributing loads are not acting.

Note:
Authority: Health and Safety Code Sections 17040, 17921, 17922, 18300, 18865, 18865.3, and 19990
Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990, 18000 – 18700, 18860 – 18874, and 19960 through 19997

ITEM 4-10 – Committee Recommendations

A AA D FS

APPROVED AS SUBMITTED

*** * ***

(END OF ITEM)

ITEM 4-11 AS SUBMITTED

CHAPTER 22 – STEEL

~~**2204.1 Load and Resistance Factor Design.** Steel design based on load and resistance factor design method shall resist the factored load combinations of section 1612.2 in accordance with the applicable requirements of section 2205. Seismic design of structures, where required, shall comply with Division IV for structures designed in accordance with Division II (LRFD).~~

2204.1 Load and Resistance Factor Design.

2204.1.1 Steel design based on load and resistance factor design method shall resist the factored load combinations of section 1612.2 in accordance with the applicable requirements of section 2205. Seismic design of structures, where required, shall comply with Division IV for structures designed in accordance with Division II (LRFD).

~~2204.1.1~~ 2204.1.2 [For HCD 1 & HCD 2] Steel design based on load and resistance factor design method shall resist the factored load combinations of section 1612.2 in accordance with the applicable requirements of section 2205. * * *

ITEM 4-11 – Committee Recommendations

A AA D FS

APPROVED AS SUBMITTED

*** * ***

(END OF ITEM)

ITEM 4-12 AS SUBMITTED

~~**2204.2 Allowable Stress Design.** Steel design based on allowable stress design methods shall resist the factored load combinations of section 1612.3 in accordance with the applicable requirements of section 2205. Seismic design of structures, where required, shall comply with Division V for structures designed in accordance with Division III (ASD).~~

2204.2 Allowable Stress Design.

2204.2.1 Steel design based on allowable stress design methods shall resist the factored load combinations of section 1612.3 in accordance with the applicable requirements of section 2205. Seismic design of structures, where required, shall comply with Division V for structures designed in accordance with Division III (ASD).

~~2204.2.1~~ 2204.2.2 [For HCD 1 & HCD 2] *Steel design based on allowable stress design methods shall resist the factored load combinations of section 1612.3 in accordance with the applicable requirements of section 2205. * * **

Note:
Authority: Health and Safety Code Sections 17040, 17921, 17922, 18300, 18865, 18865.3, and 19990
Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990, 18000 – 18700, 18860 – 18874, and 19960 through 19997

ITEM 4-12 – Committee Recommendations

A AA D FS

APPROVED AS SUBMITTED

*** * ***

(END OF ITEM)

ITEM 4-13 AS SUBMITTED

Division IV – SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS

NOTE: This Division shall not apply to applications regulated by the Department of Housing and Community Development as referenced in Sections 101.17.9 and 101.17.10. See Chapter 22B, Division IV.

Repeal the adoption of Chapter 22, Division IV, Sections 2210 and 2211 in their entirety and adopt the proposed Chapter 22B, Division IV, Sections 2210B, 2211B and 2212B.

Division V – SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS FOR USE WITH ALLOWABLE STRESS DESIGN

NOTE: This Division shall not apply to applications regulated by the Department of Housing and Community Development as referenced in Sections 101.17.9 and 101.17.10. See Chapter 22B, Division V

Repeal the adoption of Chapter 22, Division V, Sections 2212, 2213 and 2214 in their entirety and adopt the proposed Chapter 22B, Division V, Sections 2213B, 2214B and 2215B.

Note:
Authority: Health and Safety Code Sections 17040, 17921, 17922, 18300, 18865, 18865.3, and 19990
Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990, 18000 – 18700, 18860 – 18874, and 19960 through 19997

ITEM 4-13 – Committee Recommendations

A AA D FS

APPROVED AS SUBMITTED

*** * ***

(END OF ITEM)

ITEM 4-14 AS SUBMITTED

CHAPTER 22B [For HCD 1 & HCD 2]

STEEL

DIVISION I – GENERAL

See Chapter 22, STEEL, Division I for content of this division.

DIVISION II – DESIGN STANDARDS FOR LOAD AND RESISTANCE FACTOR DESIGN SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS

See Chapter 22, STEEL, Division II for content of this division.

DIVISION III – DESIGN STANDARD FOR SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS ALLOWABLE STRESS DESIGN AND PLASTIC DESIGN

See Chapter 22, STEEL, Division III for content of this division.

Division IV – SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS

Based on Seismic Provisions for Structural Steel Buildings, of the American Institute of Steel Construction.

(Part III, dated April 15, 1997
and Supplement No. 2, dated November 10, 2000.)

2210B – ADOPTION
Except for the modifications as set forth in Sections 2211B and 2212B of this division and the requirements of the Building Code, the seismic design, fabrication, and erection of structural steel shall be in accordance with the Seismic Provisions for Structural Steel Buildings, April 15, 1997 published by the American Institute of Steel Construction, 1 East Wacker Drive, Suite 3100, Chicago, IL 60601, as if set out at length herein. The adoption of Seismic Provisions for Structural Steel Buildings in this Division, hereinafter referred to as AISC-Seismic, shall include Parts I (LRFD), and Supplement No. 2, dated November 10, 2000.

Where other codes, standards, or specifications are referred to in this specification, they are to be considered as only an indication of an acceptable method or material that can be used with the approval of the Building Official.

2211B – DESIGN METHODS
When the load combinations from Section 1612.2 for LRFD are used, structural steel buildings shall be designed in accordance with Chapter 22 Division II (AISC-LRFD) and Part I of AISC-Seismic as modified by this Division.

2212B – AMENDMENTS

The AISC-Seismic adopted by this Division apply to the seismic design of structural steel members except as modified by this Section.
The following terms that appear in AISC-Seismic shall be taken as indicated in the 1997 Uniform Building Code.

AISC-Seismic	***1997 Uniform Building Code***
Seismic Force Resisting System	*Lateral Force Resisting System*
Design Earthquake	*Design Basis Ground Motion*
Load Combinations Eqs. (4-1) and (4-2) *LRFD Specification Section Eqs. (A4-1) through (A4-6)*	*Chapter 16 Eqs. (12-17) and (12-18) respectively* *Chapter 16 Eqs. (12-1) through (12-6) respectively*
$\Omega_o Q_E$	E_m

1. Part I, Sec. 1. of the AISC Seismic Provisions is revised as follows:

1. SCOPE.

These provisions are intended for the design and construction of structural steel members and connections in the Seismic Force Resisting Systems in buildings for which the design forces resulting from earthquake motions have been determined on the basis of various levels of energy dissipation in the inelastic range of response. These provisions shall apply to buildings in Seismic Zone 2 with an importance factor I greater than one, in Seismic Zones 3 and 4 or when required by the Engineer of Record.

These provisions shall be applied in conjunction with, Chapter 22, Division II, hereinafter referred to as the LRFD Specification. All members and connections in the Lateral Force Resisting System shall have a design strength as provided in the LRFD Specification to resist load combinations 12-1 through 12-6 (in Chapter 16) and shall meet the requirements in these provisions.

Part I includes a Glossary, which is specifically applicable to this Part, and Appendix S.

2. Part I, Sec. 4.1. of the AISC Seismic Provisions is deleted and replaced as follows:

4.1 Loads and Load Combinations.

The loads and load combinations shall be those in Section 1612.2 except as modified throughout these provisions.

E_h, is the horizontal component of earthquake load E required in Chapter 16. Where required in these provisions, an amplified horizontal earthquake load $\Omega_o E_h$ shall be used in lieu of E_h as given in the load combinations below. The term Ω_o is the system overstrength factor as defined in chapter 16. The additional load combinations using amplified horizontal earthquake load are:

$$1.2\,D + 0.5\,L + 0.2S + \Omega_o E_h \qquad (4\text{-}1)$$

$$0.9\,D + \Omega_o E_h \qquad (4\text{-}2)$$

Exception: the load factor on L in load combination 4-1 shall be equal to 1.0 for garages, areas occupied as places of public assembly and all areas where the live load is greater than 100 psf.

Division V – Seismic Provisions for Structural Steel Buildings
For Use With Allowable Stress Design

Based on Seismic Provisions for Structural Steel Buildings, of the American Institute of Steel Construction.

(Part III, dated April 15, 1997
and Supplement No. 2, dated November 10, 2000.)

2213B – ADOPTION
Except for the modifications as set forth in Sections 2211B and 2212B of this division and the requirements of the Building Code, the seismic design, fabrication, and erection of structural steel shall be in accordance with the Seismic Provisions for Structural Steel Buildings, April 15, 1997 published by the American Institute of Steel Construction, 1

East Wacker Drive, Suite 3100, Chicago, IL 60601, as if set out at length herein. The adoption of Seismic Provisions for Structural Steel Buildings in this Division, hereinafter referred to as AISC-Seismic, shall include Parts III (ASD) and Supplement No. 2, dated November 10, 2000.

Where other codes, standards, or specifications are referred to in this specification, they are to be considered as only an indication of an acceptable method or material that can be used with the approval of the Building Official.

2214B – DESIGN METHODS

When the Allowable Stress Design (ASD) method is used for design of members, structural steel buildings shall be designed in accordance with Chapter 22 Division III (AISC-ASD) and Part III of AISC-Seismic as modified by this Division.

2215B – AMENDMENTS

The AISC-Seismic adopted by this Division apply to the seismic design of structural steel members except as modified by this Section.
The following terms that appear in AISC-Seismic shall be taken as indicated in the 1997 Uniform Building Code.

AISC-Seismic	***1997 Uniform Building Code***
Seismic Force Resisting System	*Lateral Force Resisting System*
Design Earthquake	*Design Basis Ground Motion*
Load Combinations Eqs. (4-1) and (4-2)	*Chapter 16 Eqs. (12-17) and (12-18) respectively*
$\Omega_o Q_E$	E_m

1. Part III, Sec. 1. of the AISC Seismic Provisions is revised as follows:

1. SCOPE.

These provisions are intended for the design and construction of structural steel members and connections in the Seismic Force Resisting Systems in buildings for which the design forces resulting from earthquake motions have been determined on the basis of various levels of energy dissipation in the inelastic range of response. These provisions shall apply to buildings in Seismic Zone 2 with an importance factor I greater than one, in Seismic Zones 3 and 4 or when required by the Engineer of Record.

These provisions shall be applied in conjunction with, Chapter 22, Division III, hereinafter referred to as the ASD Specification. All members and connections in the Lateral Force Resisting System shall have a design strength as provided in the ASD Specification to resist load combinations 12-1 through 12-6 (in Chapter 16) and shall meet the requirements in these provisions.

Part I includes a Glossary, which is specifically applicable to this Part, and Appendix S.

2. Part III, Sec. 4.1. of the AISC Seismic Provisions is deleted and replaced as follows:

2.1 Loads and Load Combinations.

The loads and load combinations shall be those in Section 1612.2 except as modified throughout these provisions.

E_h is the horizontal component of earthquake load E required in Chapter 16. Where required in these provisions, an amplified horizontal earthquake load $\Omega_o E_h$ shall be used in lieu of E_h as given in the load combinations below. The term Ω_o is the system overstrength factor as defined in chapter 16. The additional load combinations using amplified horizontal earthquake load are:

$$1.2\,D + 0.5\,L + 0.2S + \Omega_o E_h \qquad (4\text{-}1)$$

$$0.9\,D + \Omega_o E_h \qquad (4\text{-}2)$$

Exception: the load factor on L in load combination 4-1 shall be equal to 1.0 for garages, areas occupied as places of public assembly and all areas where the live load is greater than 100 psf.

Division VI – LOAD AND RESISTANCE FACTOR DESIGN SPECIFICATION FOR COLD-FORMED STEEL STRUCTURAL MEMBERS

See Chapter 22, STEEL, Division VI for content of this division.

Division VII – SPECIFICATION FOR DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS

See Chapter 22, STEEL, Division VII for content of this division.

Division VIII – LATERAL RESISTANCE FOR STEEL STUD WALL SYSTEMS

See Chapter 22, STEEL, Division VIII for content of this division.

Division IX-OPEN WEB STEEL JOISTS

See Chapter 22, STEEL, Division IX for content of this division

Division X – DESIGN STANDARD FOR STEEL STORAGE RACKS

See Chapter 22, STEEL, Division X for content of this division

Division XI – DESIGN STANDARD FOR STRUCTURAL APPLICATIONS OF STEEL CABLES FOR BUILDINGS

See Chapter 22, STEEL, Division XI for content of this division

Note:
Authority: Health and Safety Code Sections 17040, 17921, 17922, 18300, 18865, 18865.3, and 19990
Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990, 18000 – 18700, 18860 – 18874, and 19960 through 19997

ITEM 4-14 – Committee Recommendations

A AA D FS

APPROVED AS SUBMITTED

*** * ***

(END OF ITEM)

ITEM 4-15 AS SUBMITTED

CHAPTER 23 – WOOD

Division III – DESIGN SPECIFICATIONS FOR ALLOWABLE STRESS DESIGN OF WOOD BUILDINGS

Part I – ALLOWABLE STRESS DESIGN OF WOOD

This standard, with certain exceptions, is the ANSI/NFoPA NDS-91 National Design Specification for Wood Construction of the American Forest and Paper Association, Revised 1991 Edition, and the Supplement to the 1991 Edition, National Design Specification, adopted by reference.

The National Design Specification for Wood Construction, Revised 1991 Edition, and supplement are available from the American Forest and Paper Association, 1111 19th Street, NW, Eighth Floor, Washington, DC, 20036.

[For HCD 1 & HCD 2] *For applications regulated by the Department of Housing and Community Development as referenced in Sections 101.17.9 and 101.17.10, this standard, with certain exceptions, is the ANSI/AF&PA NDS-01 National Design Specification for Wood Construction of the American Forest and Paper Association, 2001 Edition, and the Supplement to the 2001 Edition, National Design Specification, adopted by reference.*

SECTION 2316 DESIGN SPECIFICATIONS

~~**2316.1 Adoption and Scope.** The National Design Specification for Wood Construction, Revised *1991* Edition (NDS), which is hereby adopted as a part of this code, shall apply to the design and construction of wood structures using visually graded lumber, mechanically graded lumber, structural glued laminated timber, and timber piles. National Design Specification Appendix Section F, Design for Creep and Critical Deflection Applications, Appendix Section G, Effective Column Length, and Appendix Section J, Solution of Hankinson Formula are specifically adopted and made a part of this standard. The Supplement to the 1991 Edition National Design Specification, Tables 2A, 4A, 4B, 4C, 4D, 4E, 5A, 5B and 5C are specifically adopted and made a part of this standard.~~

~~Other codes, standards or specifications referred to in this standard are to be considered as only an indication of an acceptable method or material that can be used with the approval of the building official, except where such other codes, standards or specifications are specifically adopted by this code as primary standards.~~

2316.1 Adoption and Scope.

2316.1.1 The National Design Specification for Wood Construction, Revised 1991 Edition (NDS), which is hereby adopted as a part of this code, shall apply to the design and construction of wood structures using visually graded lumber, mechanically graded lumber, structural glued laminated timber, and timber piles. National Design Specification Appendix Section F, Design for Creep and Critical Deflection Applications, Appendix Section G, Effective Column Length, and Appendix Section J, Solution of Hankinson Formula are specifically adopted and made a part of this standard. The Supplement to the 1991 Edition National Design Specification, Tables 2A, 4A, 4B, 4C, 4D, 4E, 5A, 5B and 5C are specifically adopted and made a part of this standard.

Other codes, standards or specifications referred to in this standard are to be considered as only an indication of an acceptable method or material that can be used with the approval of the building official, except where such other codes, standards or specifications are specifically adopted by this code as primary standards.

2316.1.2 [For HCD 1 & HCD 2] *The National Design Specification for Wood Construction, 2001 Edition (NDS), as amended by Section 2316.3, which is hereby adopted as a part of this code, shall apply to the allowable stress design and construction of wood structures. The Supplement to the 2001 Edition National Design Specification, is specifically adopted and made a part of this standard.*

Where a code, standard or specification referred to in this code conflict with a code, standard or specification referenced in the NDS-01 for allowable stress design of wood building, the NDS-01 shall prevail.

2316.2 Amendments.

Repeal adoption of Chapter 23, Division III, Section 2316.2 in its entirety and adopt the proposed Chapter 23, Division III, Section 2316.3.

Note: The provisions of this section shall not apply to applications regulated by the Department of Housing and Community Development as referenced in Sections 101.17.9 and 101.17.10.

2316.3 [For HCD 1 & HCD 2] Amendments.

1. [For HCD 1 & HCD 2] Sec. 2.2. Add a forth sentence as follows:

Values for species and grades not tabulated shall be submitted to the enforcing agency for approval.

2. [For HCD 1 & HCD 2] Sec. 2.3.2.1. In fourth sentence, delete "or Figure B1 (see Appendix B)."

3. [For HCD 1 & HCD 2] Sec. 2.3.2.3. Delete and substitute the following:

2.3.2.3 *When using Section 1612.3.1 basic load combinations, the Load Duration Factor, C_D, noted in Table 2.3.2 shall be permitted to be used. When using Section 1612.3.2 alternate load combinations, the one-third increase shall not be used concurrently with the Load Duration Factor, C_D.*

4. [For HCD 1 & HCD 2] Table 2.3.2. Delete and substitute as follows:

TABLE 2.3.2 LOAD DURATION FACTORS, C_D

DESIGN LOAD	***LOAD DURATION***	***C_D***
Dead Load	*Permanent*	*0.9*
Floor, Occupancy Live Load	*Ten Years*	*1.0*
Snow Load	*Two Months*	*1.15*

Roof Live Load	*Seven Days*	*1.25*
Earthquake Load[1]	—	*1.33*
Wind Load[2]	—	*1.33*
Impact	—	*2.0*

[1] 1.60 may be used for nailed and bolted connections exhibiting Mode III or IV behavior, except that the increases for earthquake are not combined with the increase allowed in Section 1612.3. The 60-percent increase for nailed and bolted connections exhibiting Mode III or IV behavior for earthquake shall not be applicable to joist hangers, framing anchors, and other mechanical fastenings, including straps and hold-down anchors. The 60-percent increase shall not apply to the allowable shear values in Tables 23-II-H, 23-II-I-1, 23-II-I-2, 23-II-J or in Section 2315.3.

[2] 1.60 may be used for members and nailed and bolted connections exhibiting Mode III or IV behavior, except that the increases for wind are not combined with the increase allowed in Section 1612.3. The 60-percent increase shall not apply to the allowable shear values in Tables 23-II-H, 23-II-I-1, 23-II-I-2, 23-II-J or in Section 2315.3.

5. [For HCD 1 & HCD 2] Sec. 2.3.3. Add a second paragraph following Table 2.3.3:

The allowable unit stresses for fire-retardant-treated solid-sawn lumber and plywood, including fastener values, subject to prolonged elevated temperatures from manufacturing or equipment processes, but not exceeding 150 F (66 C), shall be developed from approved test methods that properly consider potential strength-reduction characteristics, including effects of heat and moisture.

6. [For HCD 1 & HCD 2] Sec. 2.3.4. Add second, third and fourth paragraphs as follows:

The values for lumber and plywood impregnated with approved fire-retardant chemicals, including fastener values, shall be submitted to the building official for approval. Submittal to the building official shall include all substantiating data. Such values shall be developed from approved test methods and procedures that consider potential strength-reduction characteristics, including the effects of elevated temperatures and moisture. Other adjustments are applicable, except that the impact load-duration factor shall not apply.
Values for glued-laminated timber, including fastener design values, shall be recommended by the treater and submitted to the building official for approval. Submittal to the building official shall include all substantiating data.

In addition to the requirements specified in Section 207, fire retardant lumber having structural applications shall be tested and identified by an approved inspection agency in accordance with UBC Standard 23-5.

7. [For HCD 1 & HCD 2} Sec. 5.4. Add a section as follows:

5.4.5 Ponding. *Roof-framing members shall be designed for the deflection and drainage or ponding requirements specified in Section 1506 and Chapter 16. In glued-laminated timbers, the minimum slope for roof drainage required by Section 1506 shall be in addition to a camber of one and one-half times the calculated dead load deflection. The calculation of the required slope shall not include any vertical displacement created by short taper cuts. In no case shall the deflection of glued-laminated timber roof members exceed 1/2-inch (13 mm) for a 5 pound-per-square-foot (239 Pa) uniform load.*

8. [For HCD 1 & HCD 2] Sec. 5.4. Add a new section as follows:

5.4.6 Tapered Faces. *Sawn tapered cuts shall not be permitted on the tension face of any beam. Pitched or curved beams shall be so fabricated that the laminations are parallel to the tension face. Straight, pitched or curved beams may have sawn tapered cuts on the compression face.*

For other members subject to bending, the slope of tapered faces, measured from the tangent to the lamination of the section under consideration, shall not be steeper than 1 unit vertical in 24 units horizontal (4% slope) on the tension side.

EXCEPTION: *1.This requirement does not apply to arches.*

2. Taper may be steeper at sections increased in size beyond design requirements for architectural projections.

9. [For HCD 1 & HCD 2] Sec. 11.1.5.6. Delete and substitute as follows:

11.1.5.6 *For wood-to-wood joints, the spacing center to center of nails in the direction of stress shall not be less than the required penetration. Edge or end distances in the direction of stress shall not be less than one-half of the required penetration. All spacing and edge and end distances shall be such as to avoid splitting of the wood.*

Note:
Authority: Health and Safety Code Sections 17040, 17921, 17922, 18300, 18865, 18865.3, and 19990
Reference: Health and Safety Code Sections 17000 through 17060, 17910 through 17990, 18000 – 18700, 18860 – 18874, and 19960 through 19997

ITEM 4-15 – Committee Recommendations

A AA D FS

APPROVED AS SUBMITTED

*** * ***

(END OF ITEM)

INITIAL STATEMENT OF REASONS

1) The Public Problem, Administrative Requirement, or Other Circumstance Addressed.

Administrative Requirement: The State Housing Law (SHL), Health and Safety Code (HSC) Section 17921 directs the Department of Housing and Community Development (the Department) to propose adoption, amendment or repeal of Building Standards for the protection of public health, safety, and general welfare. Government Code (GC) Section 12955.1 provides direction for the Department to propose adoption of Building Standards necessary to prohibit discrimination in the design and construction of all housing other than publicly funded housing.

2) Specific Purpose

The Department has determined amendment of the 2001 CBC is needed pursuant to the requirements of HSC Section 17921 and GC Section 12955.1. The Department's proposed action will amend the 2001 edition of the CBC. **The specific purpose** of these regulations is to amend the 2001 edition of the CBC, as indicated on the attached matrix table, into Part 2, Title 24, CCR, for the following programs:

State Housing Law:

Relative to residential occupancies, buildings or structures accessory thereto and as provided for HSC 17921.

Relative to California Fair Employment and Housing accessibility requirements as provided in GC 12955.1, except where the application is for public use only.

b) Employee Housing Act: relative to the any building or structure or outdoors premises or property in accordance with Health and Safety Code Section 17040.

c) Mobilehome Parks, or Special Occupancy Parks: relative to any permanent buildings, accessory buildings, and structures under the ownership and control of the park operator within the park in accordance with Health and Safety Code Sections 18300 and 18960 for mobilehome parks, and 18865 and 18873.4 for special occupancy parks.

d) Factory-Built Housing Law: relative to residential buildings, dwellings or portions thereof, or building components, or manufactured assemblies in accordance with Health and Safety Code Section 19990.

3) Rationale for Necessity.

The 2001 CBC became effective on November 1, 2002 and is based on the 1997 edition of the Uniform Building Code (UBC), published by the International Conference of Building Officials. The Department has developed amendments to the 2001 CBC to implement, interpret, and make specific provisions of state and federal law and /or to incorporate provisions that benefit the health, safety, and general welfare of the people of California.

It is necessary to propose amendment of some sections of the 2001 CBC to incorporate state and federal law provisions, provide clarity to the user, incorporate revised accessibility language and update structural building provisions based on current nationally recognized standards and engineering principles.

It is necessary not to propose the adoption of some sections of the 2001 CBC because they conflict with amendments which are proposed in this rulemaking action.

It is necessary to propose to bring forward previously existing State amendments from the CBC, which represent no change in their effect from the 2001 CBC.

It is necessary to propose amendment of previously existing State amendments. Some of the existing State Amendments will be amended as follows:

- Renumber the sections in order for amendments to fit appropriately into newly adopted text of the 2001 edition of the CBC.
- Add or change the reference to the application authority [HCD 1, HCD 1/AC, and/or HCD 2].
- Revise and reorganize Chapter 11A language for clarification and compliance with state and federal law.
- Not adopt some model code language of the 2001 edition of the CBC.

NOTE: Some changes have been grouped into types of amendments. Thus, a specific section of code may appear more than once because the section has more than one type of amendment.

Specific Proposed Regulatory Actions:

Structural: Representatives from the Los Angeles Regional Uniform Code Program and the Tri-Chapter, an organization of three International Code Council chapters (Peninsula, East Bay, and Monterey) participated in a technical advisory group developed under the leadership of the California Building Standards Commission (CBSC).

The group worked in partnership with local enforcement agencies in California to develop a list of the updates needed to modernize critical structural elements of the 2001 CBC. The CBSC found that adoption of these recommendations would provide for greater public safety in the event of a large earthquake, and significantly reduce loss of life and economic hardship after a major earthquake.

The Department supports the work done by the advisory group and the findings made by the CBSC. To implement these recommendations the department is proposing the following State amendments be included in the 2001 CBC.

CHAPTER 1 – ADMINISTRATION

101.17.9 Department of Housing and Community Development.
[HCD 1]
The Department is proposing new amendment language to implement Civil Code Section 12955.1, and to incorporate language from the Federal Fair Housing Amendments Act into this section. The language has been modified to provide clarity, specificity, and to provide direction for the code user. The modifications do not have a change in regulatory effect from the 2001 California Building Code. In addition formatting modifications have been made to the section title and the "HCD 1" banner.

CHAPTER 2 – DEFINITIONS

Several definitions in Chapter 2 cross-reference Chapter 11A. HCD is amending the cross-references to be consistent with the proposed revised Chapter 11A. Chapter 11A regulations have been revised and renumbered, which require several cross-references in Chapter 2 to be revised.

213 – L

Light-Frame Construction
The 1997 UBC, on several occasions, refers to "Light-Frame" construction. However, currently there is no definition for this term in Chapter 2 or 16. This could lead to confusion in the design and review process. The proposal inserts new language, with additional clarification, which clearly identifies the types of construction, which could be deemed as light frame.

217 – P

Public Accommodation
The cross-reference to 1102A.16-P in the Exception is shown in error. No definition for public accommodation is found in 1102A.16-P. HCD is proposing to repeal the cross-reference.

CHAPTER 16 — STRUCTURAL FORCES

1612.3.2.1 Alternate basic load combinations.

Purpose:

The proposal corrects a significant deficiency in the 1997 UBC.

Rationale:

The proposal clarifies that it was not the intent of the code to allow the one-third increase for wind or earthquake to be cumulative with duration of load factors as permitted in chapter 23 of UBC, by inserting new language that explicitly indicates that.

1629.4.2. Seismic Zone 4 near-source factor.

Purpose:

The proposal corrects a significant deficiency in the 1997 UBC.

Rationale:

Sections 9.6a and 9.6b of AISC - Seismic Part 1 exempts strong-column/weak-beam requirements under certain load conditions and configurations for steel Special and Intermediate moment frames. 97 UBC Section 1629.4.2 item 4 require that structures located near fault shall comply with SC/WB. The revision reflects the same requirements as in 1997 AISC-Seismic. This is consistent with SEAOC Seismology position.

1630.2.3.4 Horizontal Distribution

Purpose:

The proposal corrects a significant deficiency in the 1997 UBC.

Rationale:

To ensure that the assumption of flexible diaphragms are limited only to simplified procedure which requires design for additional seismic loads.

1630.4.2.1 Vertical Combinations

Purpose:

To add language to ensure that the seismic forces are not inadvertently reduced from higher level to a lower level due to different lateral force resisting systems along the height of the building.

Rationale:

This amendment is needed due to local geological conditions.

1630.8.2.1.1 General.

Purpose:
The added language clarifies the types of elements that would be of concern, such as beams and column supporting discontinuous systems. It also ensures that the connection of such discontinuous elements are designed for a load less that the member above is designed for. For example in case of steel columns that are part of lateral force resisting system, which are designed for the special load combination, it is critical to ensure that their connections also have sufficient capacity to transmit the load to the supporting element.

Rationale:

To clarify the application of special seismic load combination to discontinuous systems, since the code currently only refers to the material types to be considered not which types of elements.

1630.8.2.2.1 Detailing requirements in Seismic Zones 3 and 4.

Purpose:

The provision is adopted in AISC-Seismic 97 Part I, Section 8.3 and applicable to all axial loaded members. Redundant.

Rationale:

Old section is no longer applicable. Replace with provision in the AISC-Seismic.

TABLE 16-N — STRUCTURAL SYSTEMS

Purpose:

The proposal allows the use of Ordinary Moment Frames and Intermediate Moment frames with certain limitations on height and dead load.

Rationale:

Editorially revise/update table to make it consistent with the adoption of 1997 AISC-Seismic Provisions and the latest Supplements. These provisions are fundamentally updated from previous editions. It has incorporated to the extent possible, most recent findings from the FEMA funded SAC Reports.

CHAPTER 19 — CONCRETE

1915 — FOOTINGS

1915.2.2.1

Purpose:

The existing code language for the design of footings per Allowable Stress Design criteria refers to unfactored loads, which is not correct. The load combinations used for allowable stress design actually have some load factors associated with different types of loads. This change will correct this condition.

Rationale:

The proposed language eliminates the reference to unfactored loads and directly references the appropriate section for the load combinations, which need to be used.

1928.1.2.3.1 Basic Calculations

Purpose:

The proposal corrects a significant deficiency in the 1997 UBC.

Rationale:

This section was editorially revised/updated to make it consistent with the adoption of 1997 AISC-Seismic Provisions and the latest Supplements. These provisions are fundamentally updated from previous editions.

CHAPTER 22 — STEEL

2204.1.1 Load and Resistance Factor Design

Purpose:

Research after the 1994 Northridge earthquake conducted by FEMA funded SAC Joint Venture concluded that more restricted use of steel moment frame and braced frame buildings is required. Subsequent national standards such as NEHRP 2000 and ASCE 7-2002 implemented these restrictions. The 1997 AISC-Seismic Provisions was adopted by CBSC in March 2002, but applicable only to OSHPD and DSA, should be applicable to buildings of all occupancies. Furthermore, AISC has released Supplement No. 2, which supercedes Supplement No. 1.

Rationale:
Section 2204 is editorially revised/updated to make it consistent with the CBSC adoption of 1997 AISC-Seismic Provisions Parts I and III, and its latest Supplements. AISC-Seismic Parts I and III, which is adopted by the CBSC for OSHPD and DSA, will then be applicable to all buildings constructed with structural steel in California.

2204.2.1 Allowable Stress Design.

Purpose:

Research after the 1994 Northridge earthquake conducted by FEMA funded SAC Joint Venture concluded that more restricted use of steel moment frame and braced frame buildings is required. Subsequent national standards such as NEHRP 2000 and ASCE 7-2002 implemented these restrictions. The 1997 AISC-Seismic Provisions was adopted by CBSC in March 2002, but applicable only to OSHPD and DSA, should be applicable to buildings of all occupancies. Furthermore, AISC has released Supplement No. 2, which supercedes Supplement No. 1.

Rationale:

Section 2204 is editorially revised/updated to make it consistent with the CBSC adoption of 1997 AISC-Seismic Provisions Parts I and III, and its latest Supplements. AISC-Seismic Parts I and III, which is adopted by the CBSC for OSHPD and DSA, will then be applicable to all buildings constructed with structural steel in California.

CHAPTER 22B — STEEL

2205.3B Seismic Design Provisions for Structural Steel

Division IV — SEISMIC PROVISIONS FOR STRUCTURAL STEEL BUILDINGS

2210B — Adoption

2211B — Design Methods

2212B — Amendments

2213B — Adoption

2214B — Design Methods

2215B — Amendments

Purpose:

The proposal corrects a significant deficiency in the 1997 UBC.

Rationale:

The current 97 UBC edition is based on the outdated 1992 AISC Seismic provisions. The proposal makes the CBC provisions consistent with the current practice which is based on the 1997 AISC Seismic with the 2 subsequent Supplements printed afterward.

CHAPTER 23 — WOOD

DIVISION III — DESIGN SPECIFICATIONS FOR ALLOWABLE STRESS DESIGN OF WOOD BUILDINGS

BUILDINGS

PART I — ALLOWABLE STRESS DESIGN OF WOOD

2316.1 Adoption and Scope

2316.3 Amendments

Purpose:

To update the current design criteria for wood framed buildings specification, which is more than 10 years old. This action will update this provision.

Rationale:

To update the 97 UBC with the American Forrest and Paper Association and the American Wood Council publication of the 2001 NDS specifications, which incorporates many of the recent findings that were researched since publication of 1991 NDS, and it is also in a user friendlier format.

TECHNICAL, THEORETICAL, AND EMPIRICAL STUDY, REPORT, OR SIMILAR DOCUMENTS:

1. AISC 97: Seismic design provision with supplement 1 & 2
2. FEMA funded SAC reports on steel moment frames
3. SEAOC blue book
4. SEAOC Seismology Committee recommendations
5. NDS 01: National Design Specifications for Wood Construction of the American Forest and Paper Association and supplement to the 2001 edition.

CONSIDERATION OF REASONABLE ALTERNATIVES

The Building Standards Commission has determined that there are no other reasonable alternatives considered that would be more appropriate

REASONABLE ALTERNATIVES THE AGENCY HAS IDENTIFIED THAT WOULD LESSEN ANY ADVERSE IMPACT ON SMALL BUSINESS.

No alternatives were identified to lessen the adverse impact on small businesses.

FACTS, EVIDENCE, DOCUMENTS, TESTIMONY, OR OTHER EVIDENCE OF NO SIGNIFICANT ADVERSE IMPACT ON BUSINESS.

No facts, evidence, documents, testimony, or other evidence of no significant adverse economic impact on business have been identified however, the adoption of more current seismic structural requirements is necessary to preserve the health and welfare of the citizens of California during seismic activity.

DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

There is no known conflict or duplication with any of the State or Federal agency regulations. On the contrary, these regulations, if approved will be at par with the Federal and State of California regulations.

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